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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,196	09/25/2003	Jong-Hun Lee	5000-1-460	6388
33942	7590	11/14/2006	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			MALKOWSKI, KENNETH J	
			ART UNIT	PAPER NUMBER
			2613	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/671,196

Applicant(s)

LEE ET AL.

Examiner

Kenneth J. Malkowski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3-4 and 7-8, 10-11 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. With respect to these claims, applicant claims "a semiconductor optical amplifier for selectively performing an optical detection function of converting optical signals, which have been received through a first optical fiber, into electrical signals...with an optical modulation function of converting signals." As claimed in claims 1, 3, 8 and 10. However, it is well known that semiconductor optical amplifiers only amplify signals and do not possess the claimed additional functions to perform optical to electrical signal conversion or modulation capabilities. Although it is claimed that in claim 1 that the semiconductor performs modulation capabilities there is nothing within the specification or the drawings which supports the idea that the amplifier itself can perform any type of modulation. As seen in Figure 5, at central station 100 modulation requires a laser diode driver (120) and an optical modulator (140). Meanwhile, applicant claims that semiconductor optical amplifier (220) can also perform modulation, however no modulation equipment is shown in the drawing. In the

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specification applicant states on page 12 lines 5-8, "the silicon optical amplifier 220 is designed to perform the optical detection function and the optical modulation function at the same time in addition to an amplifying function. In this regard, the access point is realized by means of only the SOA 220 which is a single device." However, such a design, which is central to the invention and mentioned in two independent claims is not explained in any detail within the specification. It is merely mentioned in passing that the amplifier possesses these additional characteristics. Therefore, it is unclear how one skilled in the art could make or use an amplifier that can perform all of the claimed functions assigned to it.

Therefore, given the vague and indefinite status of the claims, claims 1-14 have not been nor can reasonably be treated with respect to the prior art. A rejection on the merits will be suspended until the claims are considered to clearly define the invention. In re Steele, Mills, and Leis 134 USPQ 292-296.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 15-18 rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent Application Publication No. 2003/0228151 to Niiho et al.

With respect to claim 15, Niiho discloses a method for an optical fiber-based wireless network (page 1 paragraphs 2-3 (combined optical fiber and radio band transmission and reception system))(Figure 1), the method comprising the steps of: receiving a communication requirement signal transmitted from an external device (4, Figure 1)(page 11 paragraph 101 (level of received RF signals determine the communication requirement))(Figure 9); selectively converting optical signals into electrical signals and sending the converted electrical signals to an external device (page 11 paragraph 103 (if the value of photocurrent detection is in transmission state, receiver selects photocurrent detection)), according to the communication requirement signal; and selectively converting signals into optical signals and transmitting the converted optical signals, according to the communication requirement signal (page 11 paragraph 103 (conversely, when the value is 0, the switch circuit selects the voltage generation circuit)).

With respect to claim 16, Niiho discloses the method as claimed in claim 15, wherein the communication requirement signal includes at least one of reception requirement signal in order to receive corresponding data and transmission requirement signals transmitted by the external device in order to transmit corresponding data (page 11 paragraph 103 (wherein reception requirement signal is a signal below a predetermined threshold level indicating a non-transmission state and a transmission requirement signal is a signal above the same predetermined threshold level indicating a transmission state))(Figure 9 depicts threshold comparison circuit 51 and switching circuit 53).

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With respect to claims 17-18, Niiho discloses the method as claimed in claim 16, wherein the selectively converting steps include performing an optical modulation (page 1 paragraph 6) function when the transmission requirement signal is received (page 2 paragraph 19 (control signal indicates whether or not to switch from a transmission state to non-transmission state))(abstract)(page 1 paragraph 10 (antenna either transmits or receives based on control signal)), and performing an optical detection function when the transmission requirement signal is not received (when antenna is receiving optical detection is performed at light emitting section 27 in Figure 1).

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to RF/ fiber-optic systems in general:

U.S. Patent Application Publication 2004/0108940 is cited to show RF combined with a fiber-optic FTTH transmission system

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Malkowski whose telephone number is (571) 272-5505. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KJM 11/9/06



**KENNETH VANDERPUYE**  
**SUPERVISORY PATENT EXAMINER**